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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,437	02/21/2001	Albert M. Leung	S168 0114 GNM/sks	5239

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EXAMINER

FERGUSON, MARISSA L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 06/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,437

Applicant(s)

LEUNG, ALBERT M.

Examiner

Marissa L Ferguson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 30-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 30-43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

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Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-14, 16-21, 30-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (U.S. Patent 6,343,514) in view of Gogoi et al. (U.S. Patent 6,156,585) and Fung (U.S. Patent 5,589,810).

As best understood, Smith teaches the invention claimed: pressure sensor comprising a member (19) adherent by stiction to a surface of the substrate (13) and the means for heating the member (Abstract), the surface of the member in contact with the substrate (Column 12, Lines 51-53), the means for heating the member comprising an electrically conductive pathway (Figures 3 and 4), the member length (Lines 27-34), the composite pressure sensor comprising first and second pressure sensors, first and second resistors (Column 8, Lines 21-51). Smith does not explicitly disclose the electrically insulating layer on a surface member, the substrate comprising silicon, and the member comprising polysilicon. Gogoi et al discloses the electrically insulating layer (202, 302) on a surface member, the substrate comprising silicon (101, Column 1, Lines 58-62), and the member comprising polysilicon (106, and Lines 35-39). Smith further does not explicitly disclose the surface roughness, the silicon dioxide layer, the bridge extending between cantilever members, cantilever members attached to the substrate

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by pads, , the bridge having a central collapsed portion, the pattern of plateaus and valleys, and the semiconductor wafer .

Fung discloses a bridge member (16) extending between cantilever members (12 and Figure 1), cantilever members attached to substrate by pads (34,35), and the bridge having a central collapsed portion (Column 5, Claim 1) the pattern of plateaus (305) and valleys (Column 3 , Lines 30-64) and semiconductor wafer (101) having a surface.

With respect to the surface roughness, it is common to have some degree of roughness due to the etching technique. Hence, a matter of experimental choice as to the exact degree of roughness. It is noted with respect to the use of a silicon dioxide layer as claimed, Gogoi et al. at least suggest same in its teaching of a silicon oxide layer (Column 1, Lines 32-47).

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Smith, to include the teachings, of Gogoi et al., for the purpose of improving the accuracy of capacitance, to include the bridge extending between cantilever members, cantilever members attached to the substrate by pads, the bridge having a central collapsed portion, the pattern of plateaus and valleys, and the semiconductor wafer as taught by Fung, for the purpose of improving semiconductor pressure sensors that requires high temperature stability.

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2. Claims 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (U.S. Patent 6,343,514) in view of Gogoi et al. (U.S. Patent 6,156,585) and Fung (U.S. Patent 5,589,810) as applied to claims 1-14, further in view of Black et al (U.S. Patent 4,463,336).

Smith et al., as modified, discloses the claimed device except metallic masking layer, and p-n junctions. Black discloses metallic masking layer (Column 3, 67-68 and Column 4, Lines 1-19) and p-n junctions (Column 3, Lines 22-25).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the device of Smith, as modified, to include the metallic masking layer and p-n junctions, as per the teachings of Black, for the purpose of manufacturing ultra-thin microelectronic pressure sensors.

Response to Arguments

6. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa L Ferguson whose telephone number is 703-305-3194. The examiner can normally be reached on (M-F) 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R Fuller can be reached on 703-308-0079.


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Marissa L Ferguson
Examiner
Art Unit 2855

June 3, 2002


Benjamin R. Fuller
Supervisory Patent Examiner
Technology Center 2800